Please amend the claims as follows:

Claims 1-18 (Canceled).

Claim 19 (New): A method for analyzing synchronizations of electroencephalography of an individual using a set of sensors starting from cerebral electromagnetic analysis of the individual, comprising:

creating a database comprising:

acquisition and digitization of electrophysiological signals output from the sensors,

calculating a degree of synchronization existing between all pairs of sensors recorded in an assembly protocol, in frequency bands between 0 and 2000 Hz, to build up the database of classes each characterizing a reference state;

statistical validation of a period analyzed in real time, which assigns the period to a class in the database; and

detecting a specific period with a determined degree of synchronization.

Claim 20 (New): A method according to claim 19, further comprising an analysis associated with at least one type of electrophysiological signals among electrocardiograms, electrooculograms, electrodermograms, breathing signals.

Claim 21 (New): A method according to claim 19, wherein a PLS method is used during the statistical validation, which estimates a phase difference between oscillations of signals from two electrodes.

Claim 22 (New): A method according to claim 21, wherein a statistical level of PLS synchronization between two signals is evaluated using circular variance of the phase difference between the signals.

Claim 23 (New): A method according to claim 21, wherein a statistical level of PLS synchronization between two signals is evaluated using normalized Shannon entropy of the phase difference between the signals.

Claim 24 (New): Application of the method according to claim 19, to real time medical or cognitive monitoring.

Claim 25 (New): Application of the method according to claim 19, for characterizing and differentiating physiological or pathological states.

Claim 26 (New): Application of the method according to claim 25, for anticipating occurrence of epileptic seizures.

Claim 27 (New): Application of the method according to claim 25, for diagnosis assistance in early stage of Parkinson's and Alzheimer's diseases.

Claim 28 (New): Application of the method according to claim 25, for diagnosis assistance of schizophrenia and depression.

Claim 29 (New): A real time medical or cognitive monitoring device starting from cerebral electromagnetic analysis of an individual, comprising:

means for acquiring and digitizing electrophysiological signals output from sensors;

means for calculating synchronization between all pairs of sensors recorded in an assembly process, in frequency bands between 0 and 2000 Hz, to build up a database of classes each characterizing a reference state;

means for statistically validating a period analyzed in real time to assign the period to a class in the database;

means for detecting a cognitive period or a specific pathological period; and

means for sending an alert signal if applicable.

Claim 30 (New): A device according to claim 29, further comprising means for performing an analysis associated with at least one type of electrophysiological signals among electrocardiograms, electrooculograms, electrodermograms, breathing signals.

Claim 31 (New): A device according to claim 29, wherein a PLS method is used by the means for statistically validating, which estimates a phase difference between oscillations of signals from two electrodes.

Claim 32 (New): A device according to claim 31, wherein a statistical level of a PLS synchronization between two signals is evaluated using circular variance of the phase difference between the signals.

Claim 33 (New): A device according to claim 31, wherein a statistical level of PLS synchronization between two signals is evaluated using normalized Shannon entropy of the phase difference between the signals.

Claim 34 (New): A device according to claim 29, further comprising:

circuits for acquisition of signals representing electrical activity of the brain;

a processor configured for acquisition and processing of the signals; and

an alert circuit for the patient or for his/her environment.

Claim 35 (New): A device according to claim 29, which is a device that the individual can carry himself or herself.

Claim 36 (New): A device according to claim 29, miniaturized to be implanted subcutaneously.